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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/691,999

10/23/2003

Sameet H. Agarwal

MS306808.1/MSFTP535US

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7590

11/17/2006

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EXAMINER

PICH, PONNOREAY

ART UNIT

PAPER NUMBER

2135

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/691,999

Applicant(s)

AGARWAL ET AL.

Examiner

Ponnoreay Pich

Art Unit

2135

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-33 is/are pending in the application.
- 4a) Of the above claim(s) 22-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's election of group I (claim 1-3 and 5-21) in the reply filed on 8/30/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)) and the requirement has been made FINAL.

Amended claims 1-3 and 5-21 were fully considered.

### ***Response to Arguments***

Applicant's arguments were fully considered. With regards to claim objections and rejections under 35 USC 112 made in the prior office action, they are withdrawn due to applicant's amendments. With regards to 101 rejections made in the prior office action, the arguments were fully considered, but were not persuasive.

In the prior office, the examiner rejected claims under 35 USC 101 as being not statutory due to the claimed invention being directed towards software per se. Applicant argues that the 101 rejections made in the prior office action were in error as the legal standard for determining whether claims are directed towards statutory subject matter is whether the claims can be applied in a practical application to produce a useful, concrete, and tangible result. Applicant states that the preamble of independent claim 1 recites a computer-implemented data security system, thus as part of a computer-implemented data security system, claim 1 produces a useful, concrete, and tangible result. The examiner respectfully disagrees.

While it is true that one must determine whether or not a claimed invention has

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practical application which yields a concrete, useful, and tangible result, merely making this determination is not a complete analysis of whether an invention is statutory. See for example MPEP 2106.01(I), which discusses how computer programs, i.e. software per se, is not statutory. Further, that the preamble of claim 1 recites that the system is "computer-implemented" is immaterial in determining whether or not the claims are statutory because: (a) where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone (as is the case for claim 1), the preamble is not given patentable weight. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951) and (b) the machine/computer implemented test is not a proper test to perform in determining whether or not an invention is statutory, see for example *Grams*, 888 F.2d at 841, 12 USPQ2d at 1829 where claim 16 was ruled nonstatutory even though it was a "computer implemented" process.

The rest of applicant's arguments with regards to claims 1-3 and 5-21 were also considered, but are moot in view of new rejections presented below.

### ***Claim Objections***

Claims 5-6 are objected to because of the following informalities: The examiner respectfully submits that "the at least one policy" recited in claims 5 and 6 should instead be "the at least one of a plurality of policies" to be consistent with what is recited in independent claim 1. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

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35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-3 and 5-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

1. Claim 1 is directed towards a system comprising a data store and a security component. Both the data store and the security components are software (see specification p6, lines 5-7 and p25, lines 1-11), thus the system of claim 1 is directed towards software per se and is not statutory. Applicant must recite a hardware component for the system of claim 1 for claim 1 to be statutory. Claims 2-3 and 5-20 are dependent on claim 1 and either further defines the software components of the system of claim 1 or further recites other components of the system which are also disclosed in the specification as being implemented as software. Thus claims 2-3 and 5-20 also are not statutory because they are directed towards software per se.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-12, 15-16, and 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Krishnapuram et al (US 7,120,698).

**Claim 1:**

Krishnapuram discloses:

1. A data store that includes at least one hierarchical data structure that comprises a plurality of data items (Fig 1, items 110, 1120, 130 and col 3, lines 10-14, 28-32, and 47-51).
2. A security component, i.e. access determination engine 140, that automatically applies at least one of a plurality of security policies to at least a first subsection of the data store based at least in part upon detection of type of the at least one hierarchical data structure (col 2, lines 51-54, 60-64 and col 5, lines 31-42).

Note that the logical tree relationships between each of the elements in the data store comprising elements 110, 120, and 130 seen in Figure 1 are used to determine the rules or policy for accessing items in the data stores. In determining the logical relationships of the elements, the type of the hierarchical data structure, i.e. type of tree, contained in the data store is detected.

**Claim 2:**

Krishnapuram further discloses the least one hierarchical data structure is at least one of a tree structure and a containment hierarchy (Fig 2; col 3, lines 28-32; and col 4, lines 24-31).

**Claim 3:**

Krishnapuram further discloses the containment hierarchy is modeled as a Directed Acyclic Graph (DAG) (col 3, lines 10-14).

**Claim 5:**

Krishnapuram further discloses the at least one of a plurality of policies is mapped from within the data store (col 3, line 47-col 4, line 16).

**Claim 6:**

Krishnapuram further discloses the at least one of a plurality of policies is at least one of explicitly mapped to an item and inherited by an item (col 5, lines 45-47 and col 6, lines 1-6).

**Claim 7:**

Krishnapuram further discloses the security component includes an Access Control List having one or more Access Control Entries (Fig 5). The examiner submits each row of the structure seen in Fig 5 as an Access Control List and each of the items in a row as an Access Control Entry.

**Claim 8:**

Krishnapuram further discloses the Access Control List is associated with a holding relationship of a containment hierarchy (Fig 5; col 5, lines 31-56; and col 6, lines 51-65). Using item 530 as an example, the Access Control List represented by item 530 has entries 1.1.1, 2.1, and 3.1. As seen in Figure 3, entry 1.1.1 is a leaf of actor tree 2100, thus is held within/associated with containment hierarchy 2100. Similar analyses are applicable to entries 2.1 and 3.1 with regards to trees 2200 and 2300 in Fig 3.

**Claim 9:**

Krishnapuram further discloses a plurality of Access Control Lists that describe discretionary access rights for an item within the containment hierarchy (Fig 5). Figure 5 shows a memory structure containing multiple rows, each row being an Access Control List which describes the access rights for an actor seen in actor tree 2100 seen in Figure 3.

**Claim 10:**

Krishnapuram further discloses the security component specifies a set of principals, i.e. actors, that are granted or denied access to perform operations on an item, i.e. target (col 6, lines 15-27).

**Claim 11:**

Krishnapuram further discloses the security component includes at least one of discretionary access control list, a system access control list, and a security identifier (Fig 5).

**Claim 12:**

Krishnapuram further discloses an ordering component that arranges one or more Access Control Entries (ACE) in an Access Control List (ACL) to determine a security policy that is enforced for an item (col 5, line 63-col 6, line 14).

**Claim 15:**

Krishnapuram further discloses a component, i.e. query-filters, that evaluates access rights for a given principal to a given data item (col 5, lines 51-65).

**Claim 16:**



Krishnapuram further discloses an effective access control list that is obtained by processing lists inherited by an item and adding inheritable access control entries in an explicit access control list (col 6, 15-27).

**Claim 18:**

Krishnapuram further discloses a security table for similarly protected security regions (Fig 5, item 500).

**Claim 19:**

Krishnapuram further discloses the security table includes at least one of the following fields: an Item Identity, an Item OrdPath, an Explicit Item, a Path ACL, and a Region ACL (Fig 5).

**Claim 20:**

Krishnapuram further discloses a component that does at least one of create a new item in a container, add an explicit ACL to an item, add a holding link to an item, delete a holding link from an item, delete an explicit ACL from an item and modify an ACL associated with an item (col 3, lines 45-47). Note that in the cited passage a user is able to modify the ACL associated with an item so a new type of action may be performed on an item.

**Claim 21:**

As per claim 21, note that Krishnapuram's invention is implemented via a computer (col 7, lines 19-23), thus there would require a computer readable medium having computer readable instructions stored therein for implementing the security component of claim 1.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnapuram et al (US 7,120,698) in view of Holdsworth et al (US 2003/0188198).

**Claim 13:**

As per claim 13, Krishnapuram does not explicitly disclose utilization of the following ordering algorithm by the security component:

For inherited ACL's (L) on the data item (I)

For items I1, I2

For ACE's A1 and A2 in L,

I1 is an ancestor of I2 and

I2 is an ancestor of I3 and

A1 is an ACE inherited from I1 and

A2 is an ACE inherited from I2

Implies

A2 precedes A1 in L,

Wherein L and I are integers.

However, use of the ordering algorithm as recited above is disclosed by Holdsworth (paragraph 58). At the time applicant's invention was made, it would have been obvious to one skilled in the art to modify Krishnapuram's invention such that the security component utilized the ordering algorithm as recited above. One skilled would have been motivated to do so because use of the ordering algorithm would allow conflicts in policies between parent and child nodes to be resolved. Note Krishnapuram is interested in having conflicting policies resolved (col 6, lines 7-27).

**Claim 14:**

As per claim 14, Krishnapuram does not explicitly disclose utilization of the following ordering algorithm by the security component:

For inherited ACL's (L) on the data item (I)

For items I1, I2

For ACE's A1 and A2 in L,

I1 is an ancestor of I2 and

A1 is an ACCESS\_DENIED\_ACE inherited from I1 and

A2 is an ACCESS\_GRANTED\_ACE inherited from I1

Implies

A1 precedes A2 in L

Wherein L and I are integers.

However, use of the ordering algorithm as recited above is disclosed by Holdsworth (paragraph 60). At the time applicant's invention was made, it would have

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been obvious to one skilled in the art to modify Krishnapuram's invention such that the security component utilized the ordering algorithm as recited above. One skilled would have been motivated to do so because use of ordering algorithms would allow conflicts in policies between parent and child nodes to be resolved. Note Krishnapuram is interested in having conflicting policies resolved (col 6, lines 7-27). One skilled would also be motivated to do utilize the above ordering algorithm because at there are times intermediate nodes requires permission for a principal which differs from one or more ancestors (Holdsworth: paragraph 60). Using the ordering algorithm as recited in claim 14 would allow this.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnapuram et al (US 7,120,698) in view of Belani et al (US 6,772,350).

**Claim 17:**

Krishnapuram does not disclose the security component comprises an access mask specifying at least one object-specific access rights, standard access rights, and generic access rights. However, Belani discloses the limitation (col 7, liens 42-48 and Fig 4).

At the time applicant's invention was made, it would have been obvious to one skilled in the art to modify Krishnapuram's invention according to the limitations recited in claim 17 in light of Belani's teachings. One skilled would have been motivated to do

so because use of an access mask would allow multiple types of permissions for an object to be easily organized in memory.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ponnoreay Pich whose telephone number is 571-272-7962. The examiner can normally be reached on 9:00am-4:30pm Mon-Fri.

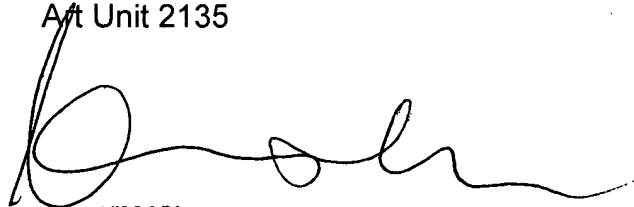
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP

Ponnoreay Pich  
Examiner  
Art Unit 2135

A handwritten signature in black ink, appearing to read 'Kim Vu', with a large, stylized initial 'K'.

**KIM VU**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2100**